

## CLAIMS

- 1           1. A method of sensing spark in an igniter in a gas turbine,  
2 engine, comprising:
  - 3           a) maintaining a sensor adjacent a surface of the  
4 igniter;
  - 5           b) using the sensor to detect spark; and
  - 6           c) issuing a signal when spark is detected.
- 1           2. Method according to claim 1, wherein said surface reaches  
2 a temperature of 175 F or greater during normal operation of the  
3 engine.
- 1           3. Method according to claim 2, wherein the sensor is in  
2 contact with said surface.
- 1           4. Method according to claim 1, wherein said surface is  
2 electrically conductive and connected to a system ground.
- 1           5. Method according to claim 1, wherein no electrical current  
2 passing through the igniter enters the sensor.
- 1           6. Method according to claim 1, wherein the gas turbine  
2 engine powers an aircraft, and the signal is issued to a pilot  
3 station in the aircraft.

1           7. Method according to claim 1, wherein  
2           1) a cable runs from an exciter to the igniter,  
3           2) the cable delivers electrical power to the igniter,  
4           3) an external conductive shield surrounds the cable and  
5           is connected to the engine,  
6           4) the cable connects to the igniter at a contact point,  
7           and a second conductive shield extends from the contact  
8           point along the igniter, and  
9           5) the sensor is wholly external to both conductive  
10          shields.

1           8. Method according to claim 1, wherein the sensor comprises  
2          an inductive pick-up.

1           9. Method according to claim 1, wherein the sensor comprises  
2          a coil, and part of the igniter forms a core of the coil.

1           10. Method according to claim 7, wherein the second  
2          conductive shield comprises a housing of the igniter.

1           12. A method of detecting spark, comprising:  
2           a) using a power source to apply a high voltage to a  
3           supply conductor connected to a spark gap, to cause  
4           dielectric breakdown in the spark gap;  
5           b) when dielectric breakdown occurs, carrying some  
6           return current from the spark gap along a path to the

7 power source;  
8 c) maintaining a conductive shield around the supply  
9 conductor; and  
10 d) detecting current in the conductive shield, and  
11 issuing a signal indicating presence of spark in  
12 response.

1 13. Method according to claim 12, wherein the path leads to  
2 a system ground.

1 14. Method according to claim 13, wherein the conductive  
2 shield is connected to a system ground.

1 15. Method according to claim 12, and further comprising  
2 maintaining the spark gap in a gas turbine engine.

1 16. Method according to claim 1, wherein the gas turbine  
2 produces power, and the sensor output is produced as a result of  
3 sparking events.